NAME: _____ BLOCK: ____ DATE: _____

PMATH 11 - CHAPTER 1 - PRETEST

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Multiple Choice

CIRCLE the choice that best completes the statement or answers the question.

1. Identify the index of $\sqrt[3]{2^7}$.
   a. 2^7 b. 3 c. 7 d. 2

2. Which of these numbers is an integer, but not a whole number?
   $-9, 0, 1, \sqrt{5}$
   a. 0 b. –9 c. $\sqrt{5}$ d. 1

3. Write $\sqrt{108}$ in simplest form.
   a. $3\sqrt{12}$
   b. $6\sqrt{3}$
   c. $36\sqrt{3}$
   d. $3\sqrt{6}$

4. Write $6\sqrt{5}$ as an entire radical.
   a. $\sqrt{30}$
   b. $\sqrt{150}$
   c. $\sqrt{180}$
   d. $\sqrt{900}$

5. Evaluate $64^{\frac{1}{3}}$.
   a. 8
   b. 4
   c. –4
   d. $21\frac{1}{3}$

6. Evaluate 3^{-2}.
   a. $\sqrt{3}$
   b. $\frac{1}{6}$
   c. $\frac{1}{9}$
   d. 9

7. Evaluate $(0.81)^{-\frac{3}{2}}$.

   a. $\frac{81}{100}$

   b. $\frac{729}{1000}$

   c. $\frac{100}{81}$

   d. $\frac{1000}{729}$

8. Evaluate $81^{-0.75}$.

   a. $\frac{4}{243}$

   b. $\frac{1}{27}$

   c. 27

   d. $\frac{1}{81}$

9. Simplify $\frac{\left(3.5^{-6}\right)\left(3.5^{5}\right)}{3.5^{-1}}$ by writing as a single power.

   a. 3.5^{10}

   b. 3.5^{-29}

   c. 3.5^{0}

   d. 3.5^{-2}

10. Write an equivalent form of 9 as a cube root.

    a. $\sqrt[3]{6561}$ b. $\sqrt[3]{729}$ c. $\sqrt[3]{9\sqrt{81}}$ d. $\sqrt{81}$

11. Which of these numbers is rational?

    $\sqrt{\frac{4}{169}}, \sqrt{48}, \sqrt[3]{-16}, \sqrt{8.1}$

    a. $\sqrt{48}$ b. $\sqrt{8.1}$ c. $\sqrt[3]{-16}$ d. $\sqrt{\frac{4}{169}}$

12. Write $\sqrt[4]{405}$ in simplest form.

    a. $3\sqrt[4]{5}$

    b. $81\sqrt[4]{5}$

    c. $9\sqrt[4]{5}$

    d. $5\sqrt[4]{3}$

13. A square has an area of 12 square inches. Determine the side length of the square as a radical in simplest form.
    a. $4\sqrt{3}$ in.
    b. $2\sqrt{6}$ in.
    c. $3\sqrt{2}$ in.
    d. $2\sqrt{3}$ in.

14. A cube has a volume of 7290 cm^3. Determine the edge length of the cube as a radical in simplest form.
    a. $9\sqrt[3]{90}$ cm
    b. $9\sqrt[3]{10}$ cm
    c. $81\sqrt[3]{10}$ cm
    d. $10\sqrt[3]{9}$ cm

15. Write $42^{\frac{5}{4}}$ as a radical.
    a. $\sqrt[5]{42^4}$
    b. $\left(\sqrt[4]{42}\right)^5$
    c. $\sqrt[1.25]{42}$
    d. $\left(\sqrt[5]{42}\right)^4$

16. Simplify $\frac{12p^3q^{-7}}{15pq^6}$. Write using powers with positive exponents.
    a. $\frac{4p^3}{5q^{13}}$
    b. $\frac{p^2}{3q^{13}}$
    c. $\frac{4p^2}{5q}$
    d. $\frac{4p^2}{5q^{13}}$

17. Simplify $\left(\frac{36x^4y^3}{4x^8y^{-1}}\right)^{\frac{1}{2}}$.
    a. $3x^2y^2$
    b. $\frac{3y^2}{x^2}$
    c. $\frac{3y}{x^2}$
    d. $\frac{3y^2}{x^6}$

18. Simplify $\dfrac{\left(m^3 n^{-3}\right)^{-1}}{\left(m^{-2} n\right)^4}$.

a. $\dfrac{m^5}{n^7}$

b. $\dfrac{m^5}{n}$

c. $\dfrac{m^{11}}{n}$

d. $\dfrac{m^{11}}{n^7}$

Problem - SHOW YOUR WORK

19. Order these numbers from **least to greatest**:
WORK

$\sqrt{38}$

$\sqrt[3]{515}$

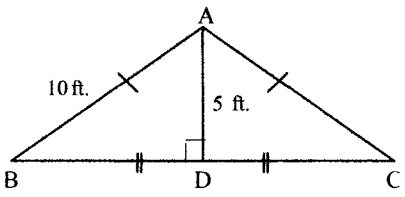
$\dfrac{13}{3}$

$\sqrt{2}$

$\sqrt[3]{128}$

final order _____ _____ _____ _____ _____

20. In isosceles ΔABC, what is the length of BC? Write your answer as a mixed radical. Remember that PYTHAGOREAN theorem!!



21. Here is a student's solution for evaluating a power. Prove if they are right or wrong by evaluating. Show all of your work.

WORK

$$\left(\frac{8}{27}\right)^{-\frac{2}{3}} = \frac{4}{9}$$

Is the student correct? (circle one) YES or NO

22. A cone with equal height and radius has volume 492 cm^3. What is the height of the cone to the nearest tenth of a centimetre? ($V = \frac{1}{3}\pi r^2 h$)

WORK

ANSWER